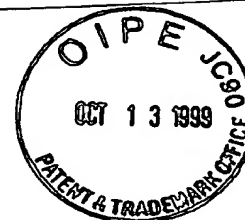SEQUENCE LISTING

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     TROYANOVSKY, Boris

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Val Glu Ile Leu Ser Asp Glu Asn Arg Asn Leu Arg Gln Glu Leu Glu
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Gly Cys Tyr Glu Lys Val Ala Arg Leu Gln Lys Val Glu Thr Glu Ile
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Arg Glu Ala Leu Glu Lys Ala Met Arg Asn Lys Leu Glu Gly Glu Ile
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Glu Lys Glu Lys Leu Glu Ala Glu Leu Ala Thr Ala Arg Ser Thr Asn
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Glu Asp Gln Arg Arg His Ile Glu Ile Arg Asp Gln Ala Leu Ser Asn
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gcc cag gcc aag gtg gta aag ctg gaa gaa gag ctg aaa aag aag caa 1360
Ala Gln Ala Lys Val Val Lys Leu Glu Glu Glu Leu Lys Lys Lys Gln
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gtg tac gtt gac aag gtg gag aag atg cag cag gcc ctt gta cag ctc 1408
Val Tyr Val Asp Lys Val Glu Lys Met Gln Gln Ala Leu Val Gln Leu
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cag gca gca tgt gaa aaa cgt gag cag cta gag cac cgt ctc cgg aca 1456
Gln Ala Ala Cys Glu Lys Arg Glu Gln Leu Glu His Arg Leu Arg Thr
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2

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atg aca aag tgg gag cag aaa tat ttg gag gag aat gtg atg aga ·cat     1648
Met Thr Lys Trp Glu Gln Lys Tyr Leu Glu Glu Asn Val Met Arg His
            270                 275                 280

ttt gct ctg gat gct gct gca act gtg gct gct cag agg gac aca aca      1696
Phe Ala Leu Asp Ala Ala Ala Thr Val Ala Ala Gln Arg Asp Thr Thr
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gtc atc agt cac tct cct aac acc agc tat gac aca gct cta gaa gct      1744
Val Ile Ser His Ser Pro Asn Thr Ser Tyr Asp Thr Ala Leu Glu Ala
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cgc atc cag aaa gag gag gaa gaa atc ttg atg gcc aat aag cgt tgc      1792
Arg Ile Gln Lys Glu Glu Glu Glu Ile Leu Met Ala Asn Lys Arg Cys
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ctt gac atg gag ggc agg att aag acc ctc cat gcc cag att att gag      1840
Leu Asp Met Glu Gly Arg Ile Lys Thr Leu His Ala Gln Ile Ile Glu
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aag gat gcc atg atc aaa gta ctc cag cag cgt tcc cgg ·aag gag ccg     1888
Lys Asp Ala Met Ile Lys Val Leu Gln Gln Arg Ser Arg Lys Glu Pro
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agc aag aca gag cag ctg tcg tgc atg cgg cca gcg aag tct ctg atg      1936
Ser Lys Thr Glu Gln Leu Ser Cys Met Arg Pro Ala Lys Ser Leu Met
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tcc att tcc aat gct gga tca ggc ttg ctc tcc cac tca tcc acc ctg      1984
Ser Ile Ser Asn Ala Gly Ser Gly Leu Leu Ser His Ser Ser Thr Leu
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act ggc tcc ccc atc atg gaa gaa aag cga gac gac aag agc tgg aag      2032
Thr Gly Ser Pro Ile Met Glu Glu Lys Arg Asp Asp Lys Ser Trp Lys
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ggg agc cta ggc att ctc ctg ggt gga gac tac cgt gct gaa tat gtc      2080
Gly Ser Leu Gly Ile Leu Leu Gly Gly Asp Tyr Arg Ala Glu Tyr Val
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cct tcc aca ccc tcg cct gtg cca ccc tcg act ccc ctg ctc tcg gct      2128
Pro Ser Thr Pro Ser Pro Val Pro Pro Ser Thr Pro Leu Leu Ser Ala
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cac tcc aag aca ggc agc cga gac tgc agt acc caa act gaa cgt ggg      2176
His Ser Lys Thr Gly Ser Arg Asp Cys Ser Thr Gln Thr Glu Arg Gly
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acg gaa tcg aac aaa act gca gct gtt gct ccc atc tct gtt cct gct      2224
Thr Glu Ser Asn Lys Thr Ala Ala Val Ala Pro Ile Ser Val Pro Ala
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cca gtt gct gct gcc gcc act gct gcc gcc atc act gcc act gct gcc      2272
Pro Val Ala Ala Ala Ala Thr Ala Ala Ala Ile Thr Ala Thr Ala Ala
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3

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Ser Pro Ala Thr Gly Pro Gly Pro His Arg Leu Ser Ile Pro Ser Leu
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Glu Met Val Glu Tyr Leu Ile
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5

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6

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Lys Val Ala Arg Leu Gln Lys Val Glu Thr Glu Ile Gln Arg Val Ser
        50                  55                  60

Glu Ala Tyr Glu Asn Leu Val Lys Ser Ser Ser Lys Arg Glu Ala Leu
65                  70                  75                      80

Glu Lys Ala Met Arg Asn Lys Leu Glu Gly Glu Ile Arg Arg Met His
                85                  90                  95

Asp Phe Asn Arg Asp Leu Arg Glu Arg Leu Glu Thr Ala Asn Lys Gln
            100                 105                 110

Leu Ala Glu Lys Glu Tyr Glu Gly Ser Glu Asp Thr Arg Lys Thr Ile
            115                 120                 125

Ser Gln Leu Phe Ala Lys Asn Lys Glu Ser Gln Arg Glu Lys Glu Lys
    130                 135                 140

Leu Glu Ala Glu Leu Ala Thr Ala Arg Ser Thr Asn Glu Asp Gln Arg
145                 150                 155                 160

Arg His Ile Glu Ile Arg Asp Gln Ala Leu Ser Asn Ala Gln Ala Lys
            165                 170                 175

Val Val Lys Leu Glu Glu Glu Leu Lys Lys Lys Gln Val Tyr Val Asp
            180                 185                 190

Lys Val Glu Lys Met Gln Gln Ala Leu Val Gln Leu Gln Ala Ala Cys
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Glu Lys Arg Glu Gln Leu Glu His Arg Leu Arg Thr Arg Leu Glu Arg
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Glu Leu Glu Ser Leu Arg Ile Gln Gln Arg Gln Gly Asn Cys Gln Pro
225                 230                 235                 240

Thr Asn Val Ser Glu Tyr Asn Ala Ala Ala Leu Met Glu Leu Leu Arg
            245                 250                 255

Glu Lys Glu Glu Arg Ile Leu Ala Leu Glu Ala Asp Met Thr Lys Trp
            260                 265                 270

Glu Gln Lys Tyr Leu Glu Glu Asn Val Met Arg His Phe Ala Leu Asp
            275                 280                 285

Ala Ala Ala Thr Val Ala Ala Gln Arg Asp Thr Thr Val Ile Ser His
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Ser Pro Asn Thr Ser Tyr Asp Thr Ala Leu Glu Ala Arg Ile Gln Lys
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Glu Glu Glu Glu Ile Leu Met Ala Asn Lys Arg Cys Leu Asp Met Glu
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Gly Arg Ile Lys Thr Leu His Ala Gln Ile Ile Glu Lys Asp Ala Met
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7

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Ile Lys Val Leu Gln Gln Arg Ser Arg Lys Glu Pro Ser Lys Thr Glu
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Ala Gly Ser Gly Leu Leu Ser His Ser Ser Thr Leu Thr Gly Ser Pro
385                 390                 395                 400

Ile Met Glu Glu Lys Arg Asp Asp Lys Ser Trp Lys Gly Ser Leu Gly
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Ile Leu Leu Gly Gly Asp Tyr Arg Ala Glu Tyr Val Pro Ser Thr Pro
            420                 425                 430

Ser Pro Val Pro Pro Ser Thr Pro Leu Leu Ser Ala His Ser Lys Thr
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Gly Ser Arg Asp Cys Ser Thr Gln Thr Glu Arg Gly Thr Glu Ser Asn
        450                 455                 460

Lys Thr Ala Ala Val Ala Pro Ile Ser Val Pro Ala Pro Val Ala Ala
465                 470                 475                 480

Ala Ala Thr Ala Ala Ala Ile Thr Ala Thr Ala Ala Thr Ile Thr Thr
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Thr Met Val Ala Ala Ala Pro Val Ala Val Ala Ala Ala Ala Ala Pro
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Ala Ala Ala Ala Ala Pro Ser Pro Ala Thr Ala Ala Ala Thr Ala Ala
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Ala Val Ser Pro Ala Ala Ala Gly Gln Ile Pro Ala Ala Ala Ser Val
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Gln Val Ala Pro Ala Ala Pro Ala Pro Val Pro Ala Pro Ala Leu Val
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Pro Val Pro Ala Pro Ala Ala Ala Gln Ala Ser Ala Pro Ala Gln Thr
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Gln Ala Pro Thr Ser Ala Pro Ala Val Ala Pro Thr Pro Ala Pro Thr
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Pro Thr Pro Ala Val Ala Gln Ala Glu Val Pro Ala Ser Pro Ala Thr
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Gly Pro Gly Pro His Arg Leu Ser Ile Pro Ser Leu Thr Cys Asn Pro
625                 630                 635                 640

Asp Lys Thr Asp Gly Pro Val Phe His Ser Asn Thr Leu Glu Arg Lys
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8

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Tyr Leu Ile
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Ser Asp Glu Asn Arg Asn Leu Arg Gln Glu Leu Glu Gly Cys Tyr Glu
           35                  40                 45

Lys Val Ala Arg Leu Gln Lys Val Glu Thr Glu Ile Gln Arg Val Ser
       50                  55                 60

Glu Ala Tyr Glu Asn Leu Val Lys Ser Ser Ser Lys Arg Glu Ala Leu
 65                  70                  75                 80

Glu Lys Ala Met Arg Asn Lys Leu Glu Gly Glu Ile Arg Arg Met His
               85                  90                 95

Asp Phe Asn Arg Asp Leu Arg Glu Arg Leu Glu Thr Ala Asn Lys Gln
           100                 105                110

Leu Ala Glu Lys Glu Tyr Glu Gly Ser Glu Asp Thr Arg Lys Thr Ile
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Ser Gln Leu Phe Ala Lys Xaa Lys Glu Ser Gln Arg Glu Lys Glu Lys
       130                 135                140

Leu Glu Ala Xaa Xaa Xaa Thr Ala Arg Ser Thr Asn Glu Asp Gln Arg
145               ~   150                 155                160

Arg His Ile Glu Ile Arg Asp Gln Ala Leu Ser Asn Ala Gln Ala Lys
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Val Val Lys Leu Glu Glu Glu Leu Lys Lys Lys Gln Val Tyr Val Asp
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Lys Val Glu Lys Met Gln Gln Ala Leu Val Gln Leu Gln Ala Ala Cys
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9

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Glu Lys Glu Glu Arg Ile Leu Ala Leu Glu Ala Asp Met Thr Lys Trp
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Glu Gln Lys Tyr Leu Glu Glu Asn Val Met Arg His Phe Ala Leu Asp
            275                 280                 285

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Ser Pro Asn Thr Ser Tyr Asp Thr Ala Leu Glu Ala Arg Ile Gln Lys
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Glu Glu Glu Glu Ile Leu Met Ala Asn Lys Arg Cys Leu Asp Met Glu
                325                 330                 335

Gly Arg Ile Lys Thr Leu His Ala Gln Ile Ile Glu Lys Asp Ala Met
            340                 345                 350

Ile Lys Val Leu Gln Gln Arg Ser Arg Lys Glu Pro Ser Lys Thr Glu
            355                 360                 365

Gln Leu Ser Cys Met Arg Pro Ala Lys Ser Leu Met Ser Ile Ser Asn
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Ala Gly Ser Gly Leu Leu Ser His Ser Ser Thr Leu Thr Gly Ser Pro
385                 390                 395                 400

Ile Met Glu Glu Lys Arg Asp Asp Lys Ser Trp Lys Gly Ser Leu Gly
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Ile Leu Leu Gly Gly Asp Tyr Arg Ala Glu Tyr Val Pro Ser Thr Pro
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Ser Pro Val Pro Pro Ser Thr Pro Leu Leu Ser Ala His Ser Lys Thr
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Gly Ser Arg Asp Cys Ser Thr Gln Thr Glu Arg Gly Thr Glu Ser Asn
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Lys Thr Ala Ala Val Ala Pro Ile Ser Val Pro Ala Pro Val Ala Ala
465                 470                 475                 480

Ala Ala Thr Ala Ala Ala Ile Thr Ala Thr Ala Ala Thr Ile Thr Thr
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Thr Met Val Ala Ala Ala Pro Val Ala Val Ala Ala Ala Ala Ala Pro
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Ala Val Ser Pro Ala Ala Ala Gly Gln Ile Pro Ala Ala Ala Ser Val
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Gln Ala Pro Thr Ser Ala Pro Ala Val Ala Pro Thr Pro Ala Pro Thr
            595             600             605

Pro Thr Pro Ala Val Ala Gln Ala Glu Val Pro Ala Ser Pro Ala Thr
        610             615             620

Gly Pro Gly Pro His Arg Leu Ser Ile Pro Ser Leu Thr Cys Asn Pro
625                 630             635                         640

Asp Lys Thr Asp Gly Pro Val Phe His Ser Asn Thr Leu Glu Arg Lys
            645             650             655

Thr Pro Ile Gln Ile Leu Gly Gln Glu Pro Asp Ala Glu Met Val Glu
            660             665             670

Tyr Leu Ile
        675


<210> 4
<211> 143
<212> PRT
<213> Homo sapiens

<400> 4
Glu Ser Asn Lys Thr Ala Ala Val Ala Pro Ile Ser Val Pro Ala Pro
  1             5                 10                  15

Val Ala Ala Ala Ala Thr Ala Ala Ala Ile Thr Ala Thr Ala Ala Thr
            20                  25                  30

Ile Thr Thr Thr Met Val Ala Ala Ala Pro Val Ala Val Ala Ala Ala
        35                  40                  45

Ala Ala Pro Ala Ala Ala Ala Ala Pro Ser Pro Ala Thr Ala Ala Ala
    50                  55                  60

Thr Ala Ala Ala Val Ser Pro Ala Ala Ala Gly Gln Ile Pro Ala Ala
65                  70                  75                      80

Ala Ser Val Ala Ser Ala Ala Ala Val Ala Pro Ser Ala Ala Ala Ala
                85                  90                  95

Ala Ala Val Gln Val Ala Pro Ala Ala Pro Ala Pro Val Pro Ala Pro
            100             105             110

Ala Leu Val Pro Val Pro Ala Pro Ala Ala Ala Gln Ala Ser Ala Pro
        115             120             125

Ala Gln Thr Gln Ala Pro Thr Ser Ala Pro Ala Val Ala Pro Thr
    130             135             140
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11

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<210> 5
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:oligonucleotide
      primer for PCR reaction

<400> 5
tacggatccg aatcgaacaa aactgcagct g                              31


<210> 6
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:oligonucleotide
      primer for PCR reaction

<400> 6
atactcgagt catggagctg gagttggagc ca                             32


<210> 7
<211> 22
<212> DNA
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<220>
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      primer for PCR reaction

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gtttgacctg caatccagac aa                                        22


<210> 8
<211> 21
<212> DNA
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<220>
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      primer for PCR reaction

<400> 8
cccaggatct gaatgggagt t                                         21


<210> 9
<211> 25
<212> DNA
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<220>
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primer for PCR reaction

<400> 9
cagatgggcc tgtgttccac tccaa   25

<210> 10
<211> 24
<212> DNA
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<220>
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     primer for RACE PCR reaction

<400> 10
gctgacagtt gccctgacgc tgct   24

<210> 11
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
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     primer for RACE PCR reaction

<400> 11
cggagacggt gctctagctg ctca   24

<210> 12
<211> 27
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<213> Artificial Sequence

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     primer for RACE PCR reaction

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<210> 13
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     primer for RACE PCR reaction

<400> 13
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<210> 14
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<213> Artificial Sequence

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<400> 14
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<210> 15
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<212> DNA
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